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terrestrial and semi-aquatic species. They are wanting, or greatly reduced, in the strictly aquatic and strictly terrestrial forms. The author believes that these bladders are receptacles for liquid stored up for the use of the animal, but he could not confirm the statement of earlier observers that the fluid was water taken in through the cloaca.

G. H. P.

Osteology of the Percosoces. — Professor Edwin Chapin Starks, now of the University of Washington, gives in the *Proceedings of the United States National Museum*, pp. 1-10, a valuable study of the osteology of the suborder of fishes known as Percosoces. He finds the members of this group less closely related than would be supposed from their resemblance in external characters, although really allied. The Sphyrænidæ (Barracudas) stand as a group opposed to the remaining families Mugilidæ (mulletts) and Atherinidæ (silversides: Pesce-Rey). The osteology of a typical member of each family is given, with illustrative plates by the skillful hand of Mrs. Starks, who, as Chloe Lesley, was formerly the artist of the Hopkins Laboratory at Stanford University.

In all these species the so-called coronoid bone is present, but Professor Starks doubts its homology with the coronoid bone of reptiles, and thinks that the systematists have made too much of it and the anatomists not enough. It has little systematic value, for it is present in many unrelated genera (catfish, sucker, striped bass, bluefish, cod), while, on the other hand, it has been generally overlooked by anatomists as a structure present in fishes.

Starks on the Relationships of Dinolestes. — In the *Proceedings of the United States National Museum*, Professor Edwin Chapin Starks undertakes to settle the vexed question of the affinities of the Australian fish, *Dinolestes lewini*, by a study of its osteology.

In spite of its resemblance to the Barracuda and the Pesce-Rey, he finds no evidence of close affinity and places *Dinolestes* among the true percoids. It is probably allied to Sphyrænops and Scombrops and belongs to the family of Cheilodipteridæ.

The Peripheral Nervous System of Bony Fishes. — The cranial and first spinal nerves of the common silverside, *Menidia*, have been investigated by C. J. Herrick.¹ Four components are now generally recognized in the spinal nerves of vertebrates: (1) somatic motor

¹ Herrick, C. J. The Peripheral Nervous System of the Bony Fishes, *Bull. U. S. Fish Comm.*, 1898. pp. 315-320. 1899.